APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,574	01/29/2004	Jean Philippe Vasseur	CISCP850	6189

26541 7590 11/15/2007		EXAMINER
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2619	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/767,574	VASSEUR ET AL.
	Examiner	Art Unit	
	Blanche Wong	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _29 January 2004_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-64_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _4 and 22_ is/are allowed.

6)☒ Claim(s) _1-3,5,6,8-21 and 23-64_ is/are rejected.

7)☒ Claim(s) _7_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _29 January 2004_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _Dec04_.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Drawings

1.   The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the method including the steps of "receiving [by the first path computation element] virtual shortest path tree information from a second path computation element ...", "performing [by the first path computation element] computations based on said received virtual shortest path tree information to determine a revised virtual shortest path tree ...", and "sending information identifying said revised virtual shortest path three to a third path computation element ..." (all in claim 4) and the method including the steps of "receiving a path computation request form said head-end node [in a first autonomous system]", "transmitting said path computation request to a second path computation element ...", and "receiving virtual shortest path tree information from said second path computation element ..." (all in claim 8) said must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Claim Objections

2.   Claims 1,3,4,8,13,16,19-22,26,61-64 are objected to because of the following informalities:

        With regard to claim 1, Examiner suggests spelling out "MPLS" and "LSP" in line 1 when they are used for the first time.

        With regard to claim 1, Examiner suggests replacing "a shortest path tree" in line 9 with "a virtual shortest path tree" in consistent with claim language.

With regard to claim 3, Examiner suggests spelling out "CSPF" in line 2 when it is used for the first time.

With regard to claim 4, Examiner suggests spelling out "LSP" in line 3 when it is used for the first time.

With regard to claim 4, Examiner suggests replacing "a shortest path tree" in line 6 with "a virtual shortest path tree" in consistent with claim language.

With regard to claim 4, Examiner suggests replacing "said tail-end" in line 6 with "said tail-end node".

With regard to claim 8, Examiner suggests spelling out "MPLS" and "LSP" in line 2 when they are used for the first time.

With regard to claim 8, Examiner suggests replacing "one more" in line 10 with "one or more".

With regard to claim 13, Examiner suggests spelling out "MPLS" and "LSP" in line 2 when they are used for the first time.

With regard to claim 13, Examiner suggests removing "between said first area and said third area" in lines 2-3 for clarity.

With regard to claim 16, Examiner suggests spelling out "MPLS" and "LSP" in lines 2 and 3 when they are used for the first time.

With regard to claim 19, Examiner suggests spelling out "MPLS" and "LSP" in line 1 when they are used for the first time.

With regard to claim 19, Examiner suggests replacing "a shortest path tree" in line 8 with "a virtual shortest path tree" in consistent with claim language.

With regard to claim 21, Examiner suggests spelling out "CSPF" in line 2 when it is used for the first time.

With regard to claim 22, Examiner suggests spelling out "LSP" in line 2 when it is used for the first time.

With regard to claim 22, Examiner suggests replacing "a shortest path tree" in line 5 with "a virtual shortest path tree" in consistent with claim language.

With regard to claim 22, Examiner suggests replacing "said tail-end" in line 6 with "said tail-end node".

With regard to claim 26, Examiner suggests spelling out "MPLS" and "LSP" in line 2 when they are used for the first time.

With regard to claim 26, Examiner suggests replacing "one more" in line 9 with "one or more".

With regard to claims 61-64, Examiner suggests spelling out "MPLS" and "LSP" in line 1 when they are used for the first time.

With regard to claim 61, Examiner suggests replacing "a shortest path tree" in line 9 with "a virtual shortest path tree" in consistent with claim language.

With regard to claim 62, Examiner suggests replacing "a shortest path tree" in line 8 with "a virtual shortest path tree" in consistent with claim language.

With regard to claim 63, Examiner suggests replacing "a shortest path tree" in line 14 with "a virtual shortest path tree" in consistent with claim language.

With regard to claim 64, Examiner suggests replacing "a shortest path tree" in line 12 with "a virtual shortest path tree" in consistent with claim language.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4.   **Claims 1-3,5,6,8-21,23-27** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 1, it is unclear what is meant by "each" in line 4, whether it means each path computation elements or each of the plurality of path computation elements.

With regard to claim 1, it is unclear what is meant by "a path of said MPLS Traffic Engineering LSP" in line 9.

With regard to claim 2, it is unclear what comprises/is the root of said virtual shortest path tree in line 1 and what are the border routers in line 2.

With regard to claims 5 and 6, it is unclear which set of border routers in line 2 of both claims, the "one or more border routers linking said first autonomous system and said second autonomous system" in claim 1, lines 6-7, or the "one or more border routers linking said first autonomous system and a third autonomous system" in claim 1, lines 10-11.

With regard to claim 8, it is unclear what is meant by "an MPLS Traffic Engineering LSP" in line 2.

With regard to claim 9, it is unclear what is meant by "a path of said MPLS Traffic Engineering LSP" in lines 2-3.

With regard to claim 13, it is unclear what is meant by "an MPLS Traffic Engineering LSP" in line 2.

With regard to claim 14, it is unclear what is meant by "a path of said MPLS Traffic Engineering LSP" in line 2.

With regard to claim 15, it is unclear whether the "border router connected in both said first area and said third area" in line 2 is the same as the "border router connected in both said first area and said third area" in claim 13, lines 8-9.

With regard to claim 16, it is unclear what is meant by "a path of said MPLS Traffic Engineering LSP" in line 10.

With regard to claim 19, it is unclear what is meant by "each" in line 3, whether it means each path computation elements or each of the plurality of path computation elements.

With regard to claim 19, it is unclear what is meant by "a path of said MPLS Traffic Engineering LSP" in line 8.

With regard to claim 20, it is unclear what comprises/is the root of said virtual shortest path tree in line 1 and what are the border routers in line 2.

With regard to claims 23 and 24, it is unclear which set of border routers in line 2 of both claims, the "one or more border routers linking said first area and said second area" in claim 22, lines 6-7, or the "one or more border routers linking said first area and a third area" in claim 22, lines 10-11.

With regard to claim 26, it is unclear what is meant by "an MPLS Traffic Engineering LSP" in line 2.

With regard to claim 27, it is unclear what is meant by "a path of said MPLS Traffic Engineering LSP" in lines 2-3.

5.   There is insufficient antecedent basis for this limitation in the claim.

Claim 2, line 2, "other nodes".

Claims 5 and 6, both in lines 2-3, "border routers of said revised virtual shortest path tree".

Claim 14, line 4, "said head-end node of said path".

Claim Rejections - 35 USC § 101

6.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7.   **Claims 31-60** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Examiner referenced the Specification to understand what is a computer program product. In the Specification, on p.17, para. 1, Examiner found a computer program product to mean software and/or executable code. Hence, Examiner interprets the software and/or executable code to mean a computer program. A computer program is a non-statutory subject matter because it is purely an

abstract idea whereas e.g. a computer readable medium storing a computer program,

supports a statutory/hardware system.

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form

the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9.   **Claims 1-3,19-21,61-64** are rejected under 35 U.S.C. 102(e) as being anticipated by

Wu et al. (U.S. Pat No. 7,215,644).

With regard to claims 1,61,63, Wu discloses

providing a plurality of path computation elements **(internal nodes 203 or border**

nodes BN1-BN18 in Fig. 2, col. 4, line 63), each associated with a corresponding

autonomous system **(routing domains CD1-CD7 in Fig. 2, col. 4, line 57)**;

using said plurality of path computation elements to recursively **(performed**

repeatedly, col. 6, line 2) compute a virtual shortest path (IrD-CSPF : inter-domain

constraint-based shortest path, col. 6, line 44) tree **(see hierarchical routing domains**

in Fig. 2) between a first autonomous system **(domain of the source) (inter-domain)**

including said head-end node **(source) (source-to-destination)** and a second autonomous

system **(domain of the destination) (inter-domain)** including said tail-end node

(destination) (source-to-destination) ("**The primary objective of routing over a multi-domain interconnected OTN is to map a source-to-destination traffic demand into the optimal sequence of sub-paths within each domain**", col. 6, lines 40-43); and

computing a path **(optimal sequence of sub-paths)** ("**The primary objective of routing over a multi-domain interconnected OTN is to map a source-to-destination traffic demand into the optimal sequence of sub-paths within each domain**", col. 6, lines 40-43) of said MPLS Traffic Engineering LSP **(optimal sequence/shortest path)** using said virtual shortest path **(IrD-CSPF : inter-domain constraint-based shortest path, col. 6, line 44) tree (see hierarchical routing domains in Fig. 2)**.

With regard to claim 2, Wu discloses a root **(this top level hierarchical routing domain is the domain, col. 6, lines 4-5)** of said virtual shortest path **(IrD-CSPF : inter-domain constraint-based shortest path, col. 6, line 44) tree (see hierarchical routing domains in Fig. 2)** comprises said tail-end node **(destination)** ("**The primary objective of routing over a multi-domain interconnected OTN is to map a source-to-destination traffic demand into the optimal sequence of sub-paths within each domain**", col. 6, lines 40-43) and other nodes of said virtual shortest path tree are border routers **(see border nodes BN1-BN18 in Fig. 2)** connecting ones of said multiple autonomous systems **(see routing domains CD1-CD11 and nodes connected by 212 in Fig. 2)**.

With regard to claim 3, Wu discloses CSPF **(CSPF) (IrD-CSPF : inter-domain constraint-based shortest path, col. 6, line 44)** tree **(see hierarchical routing domains in Fig. 2)**.

With regard to claims 19,62,64, Wu discloses

providing a plurality of path computation elements **(internal nodes 203 or border nodes BN1-BN18 in Fig. 2, col. 4, line 63)**, each associated with a corresponding area **(routing domains CD1-CD7 in Fig. 2, col. 4, line 57)**;

using said plurality of path computation elements to recursively **(performed repeatedly, col. 6, line 2)** compute a virtual shortest path **(IrD-CSPF : inter-domain constraint-based shortest path, col. 6, line 44)** tree **(see hierarchical routing domains in Fig. 2)** between a first area **(domain of the source) (inter-domain)** including said head-end node **(source) (source-to-destination)** and a second area **(domain of the destination) (inter-domain)** including said tail-end node **(destination) (source-to-destination)** ("The primary objective of routing over a multi-domain interconnected OTN is to map a source-to-destination traffic demand into the optimal sequence of sub-paths within each domain", col. 6, lines 40-43)**; and

computing a path **(optimal sequence of sub-paths)** ("The primary objective of routing over a multi-domain interconnected OTN is to map a source-to-destination traffic demand into the optimal sequence of sub-paths within each domain", col. 6, lines 40-43)** of said MPLS Traffic Engineering LSP **(optimal sequence/shortest path)**

using said virtual shortest path **(IrD-CSPF : inter-domain constraint-based shortest path, col. 6, line 44)** tree **(see hierarchical routing domains in Fig. 2)**.

With regard to claim 20, Wu discloses a root **(this top level hierarchical routing domain is the domain, col. 6, lines 4-5)** of said virtual shortest path **(IrD-CSPF : inter-domain constraint-based shortest path, col. 6, line 44)** tree **(see hierarchical routing domains in Fig. 2)** comprises said tail-end node **(destination)** **("The primary objective of routing over a multi-domain interconnected OTN is to map a source-to-destination traffic demand into the optimal sequence of sub-paths within each domain", col. 6, lines 40-43)** and other nodes of said virtual shortest path tree are border routers **(see border nodes BN1-BN18 in Fig. 2)** connecting ones of said multiple areas **(see routing domains CD1-CD11 and nodes connected by 212 in Fig. 2)**.

With regard to claim 21, Wu discloses CSPF **(CSPF) (IrD-CSPF : inter-domain constraint-based shortest path, col. 6, line 44)** tree **(see hierarchical routing domains in Fig. 2)**.

Allowable Subject Matter

10.   **Claims 4 and 22** are allowed.

11.   Claim 7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12.　The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 4 and 22, the prior art of record fails to anticipate or make obvious a method for operating a first path computation element in a first autonomous system to participate in establishing an inter-autonomous system shortest path between a head-end node and a tail-end node, by "receiving virtual shortest path tree information from a second path computation element in a second autonomous system, said virtual shortest path tree information identifying a virtual shortest path tree rooted at said tail-end node and extending to one or more border routers *linking said first autonomous system and said second autonomous system*; performing computations based on said received virtual shortest path tree information to determine a revised virtual shortest path tree, said revised virtual shortest path tree extending from said tail-end node to one or more border routers *linking said first autonomous system and a third autonomous system*; and sending information identifying said revised virtual shortest path tree *to a third path computation element in said third autonomous system*."

Wu discloses path selection procedure by receiving a request including information of the source and destination nodes and determine the lowest common ancestor hierarchical routing domain of the source and destination nodes in a bottom-up manner.

13.　Claims 8 and 26 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

14.   Claims 5-6,9-12,23-25,27-30 would be allowable if rewritten to overcome the

rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to

include all of the limitations of the base claim and any intervening claims.

Conclusion

15.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Blanche Wong whose telephone number is 571-272-3177.
The examiner can normally be reached on Monday through Friday, 830am to 530pm.
       If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Edan Orgad can be reached on 571-272-7884. The fax phone number for the
organization where this application or proceeding is assigned is 571-273-8300.
       Information regarding the status of an application may be obtained from the Patent
Application Information Retrieval (PAIR) system. Status information for published
applications may be obtained from either Private PAIR or Public PAIR. Status information
for unpublished applications is available through Private PAIR only. For more information
about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on
access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-
217-9197 (toll-free). If you would like assistance from a USPTO Customer Service
Representative or access to the automated information system, call 800-786-9199 (IN USA
OR CANADA) or 571-272-1000.

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November 9, 2007

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